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TO: Ralph Shields, Acting Program Supervisor **HSM-90013**
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SUBJECT: REVIEW OF DATA WAIVER FOR GRO-LYFE'S SODIUM METABORATE PRODUCT USED AS A HERBICIDE

Under review for data waiver is Gro-Lyfe's herbicide product *Tri-Kil Nonselective Weed and Grass killer* (EPA Reg. No. 9754-1-AA). This product contains 10.0% of anhydrous sodium metaborate (by weight) as the active ingredient (AI), and is used primarily for control of vegetation on noncropped land (fence rows, right of way, etc.) where long residual control of seedlings is desired.

Based on the following observations and considerations, WH&S concurs on the claim that no significant human or worker exposure would result from the anticipated use of this herbicide.

Available data (*e.g.*, PHED, 1995; Stamper *et al*., 1989) suggest that on average the dermal exposure rate, after adjustment for normal work clothes protection, is 7 to 39 mg/lb AI for mixer/loader/applicators using a high-pressure hand wand sprayer in a confined area (*e.g*., greenhouses). For these applicators working in an open area like fence rows, the dermal exposure rate is expected to be lower. The data also show that inhalation exposure is negligible compared to that from dermal contact. The absorbed dose is expected to be low even for exposure from dermal contact, since the dermal absorption for boric acid was determined previously to be 1% for intact skin (*e.g.*, Formoli, 1995).

According to the amended label recently (received March 22, 1999) submitted for this product, the maximum daily usage in California is one acre per applicator. The label also specifies a maximum application rate of 0.5 gallon of the product per 100 sq. ft. This means that not more than 0.42 lb of the borate AI is allowed per 100 sq. ft, since each gallon of the product weighs approximately 8.4 lb (and the borate content is 10% by weight). In short, in California the maximum usage by a single mixer/loader/applicator is 183 lb AI per day. The absorbed daily dose (ADD) for these handlers is hence expected to be less than 60 mg/person [= (23 mg/lb AI) x (183 lb AI/day) x (1% dermal absorption) + (17 mg for intake from

food and water)]. This ADD is well within the normal range (3 to 114 mg/person) of the daily intake of boric acid determined previously for the general adult population (*e.g.*, Formoli, 1995). Although the ADD calculated above is 3 to 4 times greater than the average intake of 17 mg/person/day observed for the general adult population, the actual difference is likely to be smaller. For one thing, the rate of dermal exposure should be lower than the midrange of 23 mg/lb AI used above, since the use of the maximum undiluted rate (0.5 gallon per 100 sq. ft) would reduce the activity of mixing/loading substantially. Also, the amended label requires that workers wear waterproof gloves during handling and applying.

References

Formoli T, 1995. *Document Review*: Dosimetry Study for Rx For Fleas Plus: Toxicology Review, Exposure Assessment, Risk Characterization. HSM95002. Worker Health and Safety Branch, Cal/EPA Department of Pesticide Regulation.

PHED (Pesticide Handlers Exposure Database, Version 1.1, 1995). Prepared for Health Canada, US EPA, and American Crop Protection Association by Versar Inc. (6850 Versar Center, P.O. Box 1549, Springfield, VA 22151.

Stamper JH, Nigg HN, Mahon WD, Nielsen AP, Royer, MD (1989). Pesticide Exposure to Greenhouse Handgunners. *Arch Environ Contam Toxicol* 18:515-529 (*see* also HS-1684).

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